Listing of Claims:

1. (Previously Presented) A system for providing power to more than one ultrasonic welding probe from a single power supply comprising:

a multiple probe controller having a first jack for connection to a first ultrasonic welding probe and a second jack for connection to a second ultrasonic welding probe;

at least one programmable logic component provided within said multiple probe controller for detecting the power status of said first ultrasonic welding probe and said second ultrasonic welding probe and further for generating a first ultrasonic welding probe status signal and a second ultrasonic welding probe status signal; and

a relay for switching said power supply between supplying power to said first ~~port~~ probe and said second probe in response to said first ultrasonic welding probe status signal and said second ultrasonic welding probe status signal~~;~~

2. (Previously Presented) The system of claim 1 wherein said relay is enabled to switch power to one of said first probe and said second probe only when both said first ultrasonic welding probe status signal and said second ultrasonic welding probe status signal indicate that respective ones of said ultrasonic welding probes are not powered.

3. (Original) The system of claim 1 wherein said multiple probe controller is adapted to provide power to said second ultrasonic welding probe after receipt of said first ultrasonic welding probe status signal indicating that said first ultrasonic welding probe has terminated operation.

4. (Canceled)

5. (Original) The system of claim 1 wherein said multiple probe controller is provided in a separate chassis from an ultrasonic generator for generating said power.

6. (Original) The system of claim 1 wherein said relay for switching said power supply is provided within said multiple probe controller.

7. (Previously Presented) A method for providing power to more than one ultrasonic welding probe comprising:

monitoring the power status of at least a first ultrasonic welding probe and a second ultrasonic welding probe;

generating a first ultrasonic welding probe power status signal indicating the power status of said first ultrasonic welding probe and a second ultrasonic welding probe power status signal indicating the power status of said second ultrasonic welding probe;

providing power to said first ultrasonic welding probe such that said first ultrasonic welding probe power status signal indicates said first ultrasonic welding probe is powered;

receiving a signal to switch from providing power to said first ultrasonic welding probe to providing power to said second ultrasonic welding probe;

terminating the provision of power to said first ultrasonic welding probe;

monitoring said first ultrasonic welding probe power status signal; and

initiating the provision of power to said second ultrasonic welding probe when said first ultrasonic welding probe power status signal indicates that said first ultrasonic welding probe is no longer powered;

wherein generating said first ultrasonic welding probe power status signal comprises generating said first ultrasonic welding probe power status signal at an ultrasound voltage sense circuit.

8. (Original) The method of claim 7 wherein receiving a signal to switch from providing power to said first ultrasonic welding probe to providing power to said second ultrasonic welding probe comprises receiving said signal from an automation control system.

9. (Original) The method of claim 7 wherein receiving a signal to switch from providing power to said first ultrasonic welding probe to providing power to said second ultrasonic welding probe comprises receiving said signal from a manual selector input device.

10. (Canceled)

11. (Previously Presented) The method of claim 7 wherein monitoring said first ultrasonic welding probe power status signal comprises monitoring said first ultrasonic welding probe power status signal at a programmable logic device.

12. (Original) The method of claim 11 wherein monitoring said first ultrasonic welding probe power status signal at said programmable logic device comprises monitoring said power status signal using multiple probe controller state logic executed by said programmable logic device.

13. (Original) The method of claim 7 further comprising generating a clock signal for providing time-based control of said provision of said initiation of provision of power to said second ultrasonic welding probe, and further for providing time-based control of said monitoring of said first ultrasonic welding probe power status signal.

14. (Previously Presented) A system for providing power from one ultrasonic welding power supply to a plurality of ultrasonic welding probes comprising:

a generator generating ultrasonic power;

a selector input device having an ultrasound activation output emitting an ultrasound activation signal to request initiation of provision of power by said generator and further having a probe selection output outputting a probe selection signal; and

a multiple probe controller having at least two ultrasonic welding probes attached thereto, said multiple probe controller accepting ultrasonic probe selection signals from said probe selection

output of said selector input device and providing power from said generator to one of said at least two ultrasonic welding probes based on said ultrasonic welding probe selection signals;

wherein said multiple probe controller is adapted to monitor power to said at least two ultrasonic welding probes and is adapted to change the provision of power from one of said at least two ultrasonic welding probes to the other of said at least two ultrasonic welding probes only when power to a powered ultrasonic welding probe has been terminated and the power supplied to said powered ultrasonic welding probe has proceeded through a ring-down period.

15. (Canceled)

16. (Previously Presented) The system of claim 14 wherein said ring-down period corresponds to a ring-down status for said powered probe during which said powered probe is ceasing operation and said ring-down status is monitored by an ultrasound voltage sense circuit of said multiple probe controller.

17. (Previously Presented) The system of claim 14 wherein said multiple probe controller is provided with a clock for synchronizing ultrasonic probe control logic within said multiple probe controller.

18. (Previously Presented) The system of claim 14 wherein said multiple probe controller controls the provision of power to said ultrasonic welding probes via relays.

19. (Original) The system of claim 18 wherein said multiple probe controller comprises a programmable logic device for executing ultrasonic probe control logic and forwarding relay control signals to said relays.

20. (Original) The system of claim 19 wherein said relay control signals are provided to a relay coil driver circuit, which in turn activates said relays.

21. (Original) The system of claim 20 further comprising a coil driver fault detection circuit adapted to monitor said relay coil driver circuit and to send a fault signal to said programmable logic device when a fault is detected within said relay coil driver circuit.

22. (Previously Presented) A system for providing power to more than one ultrasonic welding probe from a single power supply comprising:

a multiple probe controller having a first jack for connection to a first ultrasonic welding probe and a second jack for connection to a second ultrasonic welding probe;

at least one programmable logic component provided within said multiple probe controller for detecting the power status of said first ultrasonic welding probe and said second ultrasonic welding probe and further for generating a first ultrasonic welding probe status signal and a second ultrasonic welding probe status signal; and

a relay for switching said power supply between supplying power to said first port and said second port in response to said first ultrasonic welding probe status signal and said second ultrasonic welding probe status signal;

wherein said multiple probe controller is provided in a separate chassis from an ultrasonic generator for generating said power.

23. (Previously Presented) The system of claim 22, wherein the at least one programmable logic component is adapted to change the provision of power from said first ultrasonic welding probe to said second ultrasonic welding probe only when power to said first ultrasonic welding probe has been terminated and said first ultrasonic welding probe has proceeded through a ring-down period.

24. (Previously Presented) The system of claim 1, wherein the at least one programmable logic component is adapted to change the provision of power from said first ultrasonic welding probe to said second ultrasonic welding probe only when power to said first ultrasonic welding probe has been terminated and said first ultrasonic welding probe has proceeded through a ring-down period.

25. (Previously Presented) A method for providing power to more than one ultrasonic welding probe comprising:

monitoring the power status of at least a first ultrasonic welding probe and a second ultrasonic welding probe;

generating a first ultrasonic welding probe power status signal indicating the power status of said first ultrasonic welding probe and a second ultrasonic welding probe power status signal indicating the power status of said second ultrasonic welding probe;

providing power to said first ultrasonic welding probe such that said first ultrasonic welding probe power status signal indicates said first ultrasonic welding probe is powered;

receiving a signal to switch from providing power to said first ultrasonic welding probe to providing power to said second ultrasonic welding probe;

terminating the provision of power to said first ultrasonic welding probe;

monitoring said first ultrasonic welding probe power status signal; and

initiating the provision of power to said second ultrasonic welding probe when said first ultrasonic welding probe power status signal indicates that said first ultrasonic welding probe is no longer powered and has proceeded through a ring-down period;

wherein generating said first ultrasonic welding probe power status signal comprises generating said first ultrasonic welding probe power status signal at an ultrasound voltage sense circuit.